

## Advances in Methods of Sugar Production Detailed to Planters' Association in Its Annual Gathering Today

### BATTLE OF HAWAII PLANTATIONS AGAINST PESTS TOLD IN REPORTS

Director of Experiment Station Tells of Progress in Industry's Crusades

Some indication of the never-ending battle of Hawaii's sugar plantations against pests and cane diseases is contained in the annual report of H. P. Agee, director of the sugar planters' experiment station. The report made to the experiment station committee's printed report presented at the annual session of the planters.

Director Agee, speaking on the progress of the work for the year, says:

"There is no change as to the status of this pest. The situation is the same as that reported a year ago. The parasite (the Tachinid fly) has attained maximum efficiency in all districts with the exception of Kauai. Mr. Sweeney reports that evidence is yet lacking as to its establishment on the Kauai plantations.

A full account of the work of the control of the cane borer through the introduction of the Tachinid parasite has been prepared by Messrs. Muir and Sweeney and published as Bulletin No. 13 of the Entomological Series under the title, "The Cane Borer Beetle in Hawaii and Its Control by Natural Enemies."

**The Leafhopper Situation**  
Conditions respecting this pest have been about normal. Several plantations have reported outbreaks, but for the most part these were not serious. The depredations at the plantation of the Hawaiian Agricultural Company have caused definite damage, but Mr. Sweeney now reports that the situation shows improvement. In the upper fields of the Oahu Sugar Company there is an extensive infestation of leafhoppers at the present time.

**New Leafhopper Parasites from Formosa**  
A year ago we stated that it was Mr. Muir's plan to effect a more rigid control of the leafhoppers by securing additional egg parasites from Formosa and it is now gratifying to report that he has introduced three new species and that there is good reason to expect that these parasites will become established.

These Mr. Muir brought with him in returning from the Philippines by way of Formosa. One of them is a Myrmecophaga of the genus *Paranagrus* and very similar to *Paranagrus* *optabilis*, our very valuable species introduced from Australia 12 years ago.

The other two Formosa leafhopper parasites were species of *Ooetetrastichus* of the family Chalcididae, and are related to the *Ooetetrastichus* *beatus* introduced from Fiji in 1905. One of these species issued in sufficient numbers from the material brought by Mr. Muir for colonies to be sent directly to several plantations. Those retained in cages failed to breed, but it is hoped that they become established from the liberated colonies. The other species of *Ooetetrastichus* issued in smaller numbers from the original material brought in by Mr. Muir, and though the entire colony was retained in the breeding cages they have propagated readily, and colonies have already been handed by Mr. Sweeney and Mr. Timberlake, with the result that colonies are now being liberated on plantations where there is an abundance of leafhoppers. Twenty-eight colonies have been distributed to date.

The comparative facility with which this project is proceeding should in no way belittle the attainment. Mr. Muir has accomplished a very important piece of work in securing three additional egg parasites of the leafhopper, and the success in handling the introduced material is due to the expert attention it has received from Mr. Sweeney and Mr. Timberlake. Despite the natural enemies already here there have been alarming leafhopper outbreaks within the past few years. The seriousness of this pest is well known and these steps toward its more rigid control deserve more than casual consideration.

**The Anomala Beetle**  
The beetle is spreading, slowly extending its damage into the cane fields at the outskirts of the infested district. One outlying center of infestation has been noted about one mile without the principal area. But the *Anomala* beetle is confined as yet to the plantations of the Honolulu Plantation Company and the Oahu Sugar Company (including the Waipio sub-station). Additional centers of infestation are to be expected. Mr. Sweeney informs us, in calling attention to cane trains and the like as ample reasons by which adult beetles may be transported from one portion of a plantation to another. He considers, however, that the chances of such distribution are small indeed compared with the beetle's own power of flight. That they have not become established throughout the cane areas of Oahu, he thinks, can be attributed alone to the fact that the females deposit their eggs before emerging from the soil for flight.

Mr. Sweeney reports that to his great satisfaction areas once badly infested have not remained so, and that good crops of cane are growing in fields where previously much of the cane was killed by the grubs. The spots most heavily infested one year do not necessarily coincide with the worst spots of the previous year.

During the wet weather of last winter the *Metarrhizium* fungus was an active agent in reducing the multiplication of the grubs. It was also observed that the grubs sought the drier ridges when the fields were wet from the heavy rains, thus relieving the damage immediately about the cane stools in the furrow.

It is today an open question whether the retention of cane trash on a field will be beneficial or otherwise in contending with the *Anomala* beetle. According to Mr. Sweeney, from the great abundance of grubs beneath the layers of trash in fields where trash has been left it looks as though this organic matter would offer an attraction that would keep them from the cane stools. On the other hand, it may furnish so favorable a breeding ground as to result in such a vast increase in the total number of beetles that in the end the damage to the cane might be greater than if the trash had been burned.

This point will be studied with great interest, as we feel that the practice of retaining trash may have an important bearing one way or the other.

**Natural Enemies and Parasites of Anomala**  
Work along this subject has resolved itself into introducing and establishing a number of natural enemies and parasites which have been found through Mr. Muir's efforts in the Orient during the past three years.

A number of white grub parasites were located in the Philippines and much of the past year has been devoted to efforts to successfully transport these to Honolulu. Much material was lost before successful ways of handling the insects were found. The length of the voyage, infrequency of ships and irregular sailing schedules have contributed to the disappointments which are the result of this work. A quantity of material was brought in by Mr. Muir when he returned in March. Mr. Osborn, who has assisted in the work in the Philippines from November, 1915, brought more when he returned in July of this year. At the present writing Mr. Muir is on his way to Japan with colonies of parasites, where he will be met by Mr. Osborn, who will return to Honolulu with the material. There is great advantage in making consignments in this manner under expert attention.

**Corn Leafhopper Parasites**  
The production of corn in these islands has been severely handicapped through the damage of the corn leafhopper. Effective egg parasites were found at Los Banos by Mr. Osborn and introduced by him when he returned in July. These are being bred at the station with the view of distributing colonies to plantations interested in corn culture. The board of agriculture has been furnished a supply, and they are also breeding them for distribution to corn growers. The introduction of these parasites should prove of much value to the territory at large.

**Introduction of Insectivorous Birds**  
After negotiations toward the introduction of the Formosan crow (*Bucconia* *asotus*), a desirable insect eater recommended by Mr. Muir, we find that this bird is barred. The federal authorities decline to issue a permit to the territorial authorities for its introduction, owing to the fact that surra, a disease of livestock, has been known to occur in Formosa. We are now corresponding in an effort to learn of some surra-free locality where this bird occurs, but we do not consider the prospects hopeful.

**The So-Called Lahaina Disease**  
Soil studies by Mr. Burgess continue to point to a certain correlation between the occurrence of black alkali and the failure of the Lahaina variety. Following this theory we have started field tests, treating the soil with gypsum, which is commonly recognized in the West as a corrective on alkaline soils. Green manuring tests are also under way with the same end in view. Thus far these tests prove disappointing, but it is early to discuss them any way but tentatively. The very striking results reported a year ago with green manuring have not been duplicated with the regularity for which we had hoped. There are favorable indications from gypsum in some instances, but no response in other cases.

We are not prepared as yet to abandon the alkali theory nor to adopt it unreservedly. Meanwhile, where Lahaina cane fails to make normal

## DETAILS GIVEN ON 1915-6 SUGAR CROP

Total Was 593,483; Segregation By Islands and Agencies Handling Output

Announcement of the Hawaiian sugar crop for the year 1915-16, given out at the annual meeting of the planters' association, gives details of the crop by islands and by agencies.

The figures, covering the period from October 1, 1915, to September 30, 1916, include the following crops by islands and plantations:

Hawaii—	Tons
Olaa Sugar Co., Ltd.	26,476
Waialeale Mill Co.	14,481
Hilo Sugar Co.	16,450
Hawaii Mill Co., Ltd.	1,845
Onopaea Sugar Co.	18,732
Pepee Sugar Co.	9,345
Honolulu Sugar Co.	6,557
Hakalau Plantation Co.	15,951
Lanipahoehoe Sugar Co.	10,174
Kaiwika Sugar Co., Ltd.	5,013
Kukui Plantation Co.	3,188
Hakakua Mill Co.	7,661
Pauuhau Sugar Plantation Co.	7,859
Honokaa Sugar	7,203
Pacific Sugar Mill	5,656
Niuli Mill and Plantation	2,116
Halawa Plantation	1,705
Kohala Sugar Co.	4,170
Union Mill Co.	1,966
Hawi Mill and Plantation	6,461
Pukaia Plantation	963
Kona Development Co., Ltd.	144
Hutchinson Sug. Plant. Co.	9,723
Hawaiian Agricultural Co.	13,818
Total Hawaii	197,654

Mau—	Tons
Pioneer Mill Co., Ltd.	32,753
Olowalu Co.	1,860
Wailuku Sugar Co.	15,094
Hawaiian Com. & Sugar Co.	59,025
Mau Agricultural Co.	34,011
Kalekale Plantation Co., Ltd.	6,721
Kipahulu Sugar Co.	848
Total Maui	150,312

Oahu—	Tons
Honolulu Plantation Co.	20,586
Oahu Sugar Co., Ltd.	32,525
Ewa Plantation Co.	32,945
Apakoo Sugar Co., Ltd.	793
Waialae Co.	4,626
Waialua Agricultural Co., Ltd.	31,227
Kahuku Plantation Co.	6,534
Lale Plantation	1,541
Koolau Agr. Co., Ltd.	971
Waimanalo Sugar Co.	5,018
Total Oahu	136,966

Kauai—	Tons
Lihue Plantation Co., Ltd.	20,168
Grove Farm Plantation	3,569
Koloa Sugar Co., The	7,955
McBryde Sugar Co., Ltd.	15,598
Hawaiian Sugar Co.	23,194
Gay & Robinson	4,650
Waimea Sugar Mill Co., The	2,054
Kekaha Sugar Co., Ltd.	16,107
Estate V. Knudsen	902
Kilauea Sugar Plantation Co.	5,216
Mahee Sugar Co.	9,138
Total Kauai	108,551

Grand Total	593,483
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Of the agencies, C. Brewer & Company handled 146,199 tons, Alexander & Baldwin 140,884 tons, Hackfeld & Company 118,924 tons, Castle & Cooke 68,235 tons, Davies & Company 53,022 tons, Bishop & Company 26,476 tons, Schaefer & Company 12,859 tons, Makee Sugar Company 9,138 tons, Hendy & Company 9,461 tons, Henry Waterhouse Trust Company, Ltd., 5,757, J. M. Dowsett, 4,626 tons, and H. M. Von Holt 902 tons.

growth, the substitution of other varieties, such as H 109, D 1135, etc., is a far more reliable recourse than any soil treatment which we have to offer at the present time. After all, whatever the trouble is with the Lahaina variety, whether a chemical fault of the soil, or an obscure disease, we have in the seedlings harder, more resistant canes. But while we are differentiating between faults of soil and weaknesses of cane varieties, it is of interest to record that at the Hamakua Mill Company Mr. Lidgate, after liming and green manuring, has produced excellent Lahaina and Rose Bamboo in a field where both these canes were formerly utter failures. Also we may note in passing that a stick of Lahaina cane has been grown in Honolulu to a length of 42 feet, and that a single joint of Lahaina cane, measuring one foot in length, has been submitted to us from Makaweli. The variety is vigorous enough to make an excellent showing where conditions are apt, but it succumbs to unfavorable environments of various natures. It is gradually giving way to harder canes.

**Other Cane Diseases**  
Infectious top rot is reported by Dr. Lyon as having appeared on Oahu and Maui during the year. During the

(Continued on Page 11)

## MODERN PRACTISE ON MECHANICAL SIDE OF SUGAR PRODUCTION GIVEN

E. Kopke and R. Renton Hind Make Illuminating Report on Standard Methods

Valuable information on "standard practise" in raw sugar manufacture is given in a report made to A. Gantley, chairman of the planters' association committee on manufacturing machinery, by E. Kopke and R. Renton Hind. This report, part of the series under consideration at the annual meeting of the planters, in an illuminative way measures the progress of sugar production on the mechanical side in Hawaii. It is as follows:

**Cane Scales.** Nearly every factory using railroad transportation is equipped with two sets of track scales for weighing filled and empty cars. Few, however, of the scales are equipped with what is known as registering beam, and the adoption of this device should eliminate many of the errors which are bound to occur when the recording of weights is left to the weigher.

**Unloaders.** The adoption of the Wick's unloader is becoming more general, due to the fact that it is the simplest form of unloading so far devised. There is need for a device for moving the mechanism from side to side mechanically, for on the large type of unloaders the handling of the machine is only possible when the unloader man is of large stature. The introduction of Philippine labor in our mills means that the average cane unloader man will not weigh more than 140 or 150 pounds, making the process of unloading a very difficult task, and something is needed to make its operation as easy as possible on the operator.

**Cane Carriers.** The mills in the Kohala district on Hawaii have for many years used iron slats about one-eighth inch thick by seven and a quarter inches or eight inches wide, for the reason that they have found that their life is a great deal longer than the usual wood slat. Many plantations, however, use a beveled wood slat, which prevents the chopping pieces of cane from falling through the carrier after the cane has passed through the revolving knives, but the use of the bevel slat makes it difficult for the water from cane flumes to run off the cane carrier.

Another feature in favor of the iron slat is the fact that the cane, when falling onto the carrier will in time wear the wooden slats unduly. From time to time new types of cane carrier chain are being adopted, but the old-fashioned chain using T bolts when equipped with rollers seems to be very efficient.

**Revolving Knives.** The introduction of the Melnecke knife hub has been a signal success in that it has allowed the use of a multiplicity of knives which prepare the cane very well for the mills.

They require considerable attention, which, of course, is to be expected, and the power required to drive them is about 12 1/2 H. P. linear foot of cane carrier width. Seven of these revolving knives have been furnished to Hawaiian mills by the Honolulu Iron Works Company since their introduction within the last two years.

**Carrier Clutches.** The universal use of the Moore clutch seems to prove that this type is meeting the needs of the day.

**Crushers.** The Krajewski crusher is fast giving way to the Fulton or grooved type, particularly with the introduction of the multiple knife sets and the Searby shredder, as it has been found that the Krajewski crusher, while it breaks the cane up very efficiently, extracts but very little of the juice.

**Searby Shredder.** The last two seasons' experience with this shredder has shown that the most advantageous position of it, in relation to the other milling machinery, is between the cane carrier and the subsequent milling machinery. In the 10 installations designed and sold by the Honolulu Iron Works Company, the following arrangement has been carried out: The cane from the carrier is cut by revolving knives and passes through the shredder; from here it passes on to the roller mills, or crusher, if there is one. Four of these installations are for Formosa.

**Mills.** Owing to the introduction of the juice groove the need for the incline type of housing is no longer felt, as the pressures exerted upon the top roller by the feed and discharge rollers can be very nearly equalized. Steel housings are replacing housings made of cast iron almost universally, for the reason that a simpler method of attaching the king bolts is brought about by the use of steel, and the liability of housing breakage is reduced to a minimum.

The placing of the jacks on the top of the housings is now considered good practise, and the introduction of devices for shifting the jacks forward or back, as originally practised

in the Pioneer mill, is still adhered to by the Honolulu Iron Works Company on account of its simplicity in construction and positiveness of holding the cap in position.

The old style intermediate slat conveyor is gradually being eliminated in favor of the new designs, which allow of a cleaner mill and do away with a great deal of the breakages which occur in the old system. Seventeen of the "Ewart" type tight-bottom intermediate bagasse conveyors have been installed in the last two seasons, and 11 more will go in for the coming season.

**Juice Strainers.** The present type of slat and chain juice strainer leaves much to be desired, as they are always dirty, take up a great deal of room, are continually breaking down and always are a source of infection to sweet cane juices. It is hoped that something will be done in the near future which will give us a simpler form of strainer.

The use of centrifugal pumps for handling mill juices as well as the mixed juices is gradually coming, replacing the direct-acting pumps, which were constant sources of trouble through breakage of valve stems, etc.

**Boilers.** With the introduction of the steam turbine for driving Searby shredders and auxiliaries throughout the sugar house, has come the necessity of higher steam pressures than can be made by return tubular fire tube boilers. Several installations are being made of water tube boilers of the Stirling type. The Babcock & Wilcox boilers have been in use on two plantations on Oahu for many years, but they have not given the success which can be rightly expected from the water tube boilers, especially designed for sugar house work.

In the 7x20-foot return tubular boiler we have reached the limit as to size of boilers, and the need for higher pressures which would require heavier plate in boiler construction makes it impracticable to design boilers of this kind to carry pressures over 150 pounds per sq. in.

**Furnaces.** There has been considerable experimenting done of late on spacing between the bars of the inclined grates and the angle of inclination necessary for the efficient burning of bagasse of mills equipped with Searby shredders or from mills where the crushing is so efficient as to practically powder the bagasse. The Ginaca-Keech furnace has met with approval, due to the fact that it is designed on the right principle, and its adoption will undoubtedly be general before very long.

**Boiler Feed Pumps.** There is a tendency toward the installation of the steam turbine or motor-driven multi-stage centrifugal pump for this purpose.

**Juice Heaters.** We still adhere to the so-called Deming type of juice heater because it is the simplest form of heater known to us. Its cleaning, however, is a big problem, and much can be done towards eliminating this trouble.

**Setting Tanks.** There are a number of advocates of the continuous type of juice settler, but those who believe that intermittent settling is satisfactory far outnumber those in the former class. The mills, however, are working now toward the adoption of tanks of a very large capacity in order to cut down the cost of manipulation and radiation losses. The continuous settler, however, has many advantages and may yet succeed the intermittent type if a continuous settler giving clear juice constantly can be devised.

**Evaporators.** While a number of film evaporators have been tried in the island, the present practise seems to point toward the adoption of standard multiple effects, as changes in the design during the last few years have led to remarkable evaporative efficiencies which have equalled the results obtained from film evaporators, and the fact that standard submerged effects can be easily cleaned has led to their re-adoption almost universally.

**Filter Presses.** This station has been one of the eyesores of the modern factory for many years, and while numerous new types of filters have been given a trial, the old plate and frame press seems to meet present conditions best. Much improvement, however, can be made in the design of these presses for reasons best known to the mill operator, and we should see development along

(Continued on Page 11)

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+ KINDERGARTENS NEEDING FUNDS  
+ The Free Kindergarten and Children's Aid Association is facing a deficit. Funds are needed in order that the year may be ended free of debt. Donations will be gratefully received from anyone interested in the work of the free kindergarten and playgrounds. These may be sent to Mrs. H. W. M. Mist, financial secretary, P. O. box 158, Honolulu.  
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## GERMANY ASKS INFORMATION ON ARABIA STATUS

State Department Receives Query From Berlin Similar to Marina Note

(Associated Press by Federal Wireles.)  
BERLIN, Germany, Dec. 5.—The foreign office yesterday forwarded to the American embassy here an inquiry in reply to the American note on the sinking of the British passenger liner Arabia. The German reply, it is reported, is similar in contents to that sent to Washington on the sinking of the P. & O. boat. Replies to the other American notes will be ready soon, it was said last night, save the reply to the note regarding the attack on the steamer Columbia. This will be delayed for some time.

## IN WAR ARENA

MACKENSEN FLANKED BY RUSSIAN SLAV ATTACK

PETROGRAD, Russia, Dec. 5.—Hastily retreating from movement by the Russians between Bucharest and the Danube, which seriously threatened his flank, a Bulgar-German force, forming a part of the army of von Mackensen, was forced to give ground and the movement to encircle the Rumanian capital was defeated, according to reports from the Russian commander in Rumania.

The Germans were surprised by the appearance of the Russian force, being unaware that any reinforcements for King Ferdinand had arrived on the scene, and their retreat was precipitous.

**Abandon Guns**  
The Teutons abandoned many guns, of all sizes and much material, besides losing heavily in killed and wounded and leaving prisoners in the Russians' hands.

That the appearance of the relieving force came just in the nick of time to save Bucharest from investment and bombardment from the north is shown in the fact that the Germans were at work upon a number of emplacements for heavy guns, which they apparently were about to bring up and mount for the shelling of the city.

**WAR STRATEGY SPLITS BRITISH CABINET**

LONDON, Eng., Dec. 5.—The political crisis still occupies the center of things in London. The London Star, a paper which generally has correct information on things political, in a statement printed this morning says that the real reason for the cabinet split is the question of strategy.

There are, according to this paper, two factions in the government, the one, headed by David Lloyd-George, minister for war, which wishes to concentrate all the available forces of the Entente Allies not needed for a purely defensive campaign in the Western theater of the war, upon a gigantic offensive movement in the Balkans, with Saloniki as the base of operations.

The other faction, it is declared, has been advocating all of the effective of the empire and allies in the French and Flanders theaters, and forcing the issue there. The fact that Lloyd-George has tendered his resignation is not regarded as indicating that the little Welshman has been defeated in his fight for the Eastern plan, but rather that he is forcing the hand of his opponents in the cabinet.

**FOUR HUNDRED MILLIONS FOR BRITISH WAR CREDIT**

LONDON, Eng., Dec. 5.—The house of commons will be asked by the premier for an additional vote of credit amounting to four hundred million pounds. This vote will come up tomorrow. If passed, and there seems no likelihood that it will fail, this will bring the total for the year up to more than a billion and three-quarters pounds, all for war purposes.

**BUCHAREST, Rumania, Dec. 5.**—Sixty-four persons were killed and 120 more or less seriously injured in a railway accident near Herezechen, Rumania, last week, according to an announcement made here last night.

**FREIGHT RATE HEARING STARTED IN 'FRISCO**

SAN FRANCISCO, Dec. 5.—Transcontinental freight rates to and from the Pacific coast ports, which are to be increased under a new tariff effective December 30, are to form the subject of a hearing before Attorney Examiner Thurtell of the interstate commerce commission, which began here yesterday. Local shippers as well as those from the other California seaports are to be represented, but the main argument in support of the California shippers' viewpoint will be made by the traffic bureau of the chamber of commerce.

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## PRATT REVIEWS FISCAL YEAR IN HEALTH REPORT

Tells of Work Carried Out By Board and Departments Under It

Dr. J. S. B. Pratt, president of the board of health, has just had put in pamphlet form the report for the year ending June 30, which he made to Governor Pincham. The book takes up the work of the health office in detail and contains approximately 70 pages.

Figures of population show for the end of the fiscal year a total of 237,623, including army and navy, which total 8352. Of the 237,771, exclusive of the military, divisions according to nationality, are as follows:

American, British, German and Russian, 16,042; Chinese, 21,954; Filipino, 16,583; Hawaiian, 23,770; Japanese, 37,000; Part-Hawaiian, 15,324; Portuguese, 23,755; Porto Rican, 5187; Spanish, 2577; and others 5254.

**Honolulu Has 68,000**  
Honolulu's population is given as 68,000 and Oahu outside of Honolulu 39,000. Hawaii has 65,000; Maui, 36,000; Kauai, 23,913, and Kalawao 710. There was a total of 3240 deaths, making a death rate of 16.58.

**Work Considerably Extended**  
Work of the sanitary engineer during the year has been enlarged and all of the islands except Kauai visited. Laboratory facilities for water analysis have been improved.

Dr. Pratt points out that the mosquito inspectors have done effective work though handicapped by lack of numbers. He says several more inspectors should be provided.

**Fewer Rats Caught**  
Owing to less money in the rat-trapping fund fewer rats were caught, but this was done in the vicinity of the wharves. Outside districts had to be neglected save in cases of special complaint. Total of rats and mongoose taken was 13,327 in Honolulu. In Hilo 137,034 were taken.

**School Work Goes On**  
Poor teeth were the cardinal defect with school children examined by Dr. L. L. Patterson, and according to the report throat troubles and adenoids were second. Eye defects were third in number.

**Destroyed Many Eggs**  
Conditions found in the examination of food stuffs were such as will require an additional amendment to the territorial law, says the report. Among the food stuffs destroyed as unfit for use were 30,000 eggs.

At the end of the last fiscal year there were 241 males and 95 females in the insane asylum or on parole, a total of 336. Thirty-eight were discharged as cured and 34 died during the year.

**Lepers Show Decrease**  
At the Leper Settlement on June 30 the number of lepers living at the settlement was 629, a decrease of nine from the previous year. By far the greater number of these were Hawaiians or Part-Hawaiians, a total of 510. Portuguese were next with 48; Chinese, 29; Japanese, 13; Korean, 10; Filipino and German, 5 each; Porto Rican and Spanish, 2 each; Americans, 2; Belgian, 1. Of the 629 there were 277 males and 252 females.

Among the improvements during the year was the erection of the Kalapapa social hall, a building 110 feet by 45 feet and with seating capacity for 350. There is a stage for moving pictures and amateur theatricals. Among the outside amusements are baseball and racing.

**BIG ORIENTAL LINES JOIN STEAMER UNION**

(Special Cable to Nippon Jiji)  
TOKYO, Dec. 4.—Thirteen trans-Pacific steamship companies which have been negotiating with the Hongkong Steamship Lines Union for some time with the idea of enlarging the union, today completed their negotiations and affiliated with the union, making it larger and more powerful.

According to announcement made here today the following steamship corporations, the biggest and wealthiest of the Orient, have joined the Union: Toyo Kisen Kaisha, Nippon Yusen Kaisha, Osaka Shosen Kaisha, China-Java Steamship Co., China Mutual, Ocean Steamship Co., Canadian Pacific, Pank Line, China Yusen Kaisha, Pacific Mail, Grain Line, Royal Mail, Waterhouse Steamship Co.

**ALLEGED WAR PLOTTERS ON TRIAL IN SAN FRANCISCO**

(Associated Press by Federal Wireles.)  
SAN FRANCISCO, Cal., Dec. 5.—Franz Bopp, the German consul-general for San Francisco; Wilhelm von Brincken, E. H. von Schack, C. C. Crowley and Mrs. Margaret B. Cornell, charged with violation of the neutrality law and with conspiracy to violate the Sherman Anti-trust Law, appeared in the federal court here yesterday for trial on both indictments. All entered pleas of not guilty to Judge M. T. Dooley.

**SICK HEADACHES**  
Decrease in severity from the minute a Chiropractic adjustment is given, and in a very short time all pain is gone. There is no deadening of the nerves in Chiropractic, but a restoration to normal. Try Chiropractic.

# 16 MORE SHOPPING DAYS TILL XMAS